



Practice

7.1 An Introduction to Polynomials

Determine whether each expression is a polynomial. If so, classify the polynomial by degree and by number of terms.

1. $5x^2 - 22x^5 + 17x$

2. $\frac{x}{2} - \frac{x^2}{2} + 13$

3. $\frac{7}{x^2} + \frac{13}{x^3}$

4. $-2x^3 - 4x^2 - 15x + 7$

5. $\sqrt[3]{x} + 12\sqrt{x}$

6. $43x^{-6} + 9x^{-7} + 12x^{-1}$

Evaluate each polynomial expression for the indicated value of x .

7. $2x^3 - 3x^2 + 4x$, $x = -2$ _____

8. $-x^4 + 3x^3 - 2x^2 + 4$, $x = -1$ _____

9. $x^5 + x^4 + x^3 + x^2 + 1$, $x = 2$ _____

10. $0.5x^3 - 0.6x^2 - 3x$, $x = 10$ _____

11. $7x^2 - 19x$, $x = 5$ _____

12. $0.75x^3 - 15x^2 + 10x$, $x = 4$ _____

Write each sum or difference as a polynomial in standard form.

13. $(3x^4 + 12x^3 - 2x^2) + (5x^4 - x^3 + 7x^2)$

14. $(-7x^4 + 24x^5 - 3x^2 + 9) - (2x^5 + 6x^4 + x + 1)$

15. $(8.8x + 2 + 3x^2 - x^4) - (5x^3 + 10x - 7x^2)$

16. $(7.1x^3 + 3.2x^2 - 7x + 8) + (9x^2 - 2x^3 + 18)$

Sketch the graph of each function. Describe the general shape of the graph.

17. $a(x) = -2x^4 + 5x^3 - 2$

18. $k(x) = 4x^4 + 4x^3 - 6x^2$

19. $f(x) = \frac{3}{4}x^3 + 2x^2 + 1$

